**CLAIMS**

1. A diffraction grating, comprising:

a reflective material having a blazed surface with a blaze angle between about 33 degrees and about 41 degrees; and

an optically transmissive material disposed adjacent the reflective material having an index of refraction (n), wherein the blazed surface of the reflective material has approximately (350±30)*n number of grooves per millimeter.

2. The diffraction grating of claim 1, wherein:

the number of grooves per millimeter for the reflective material is between about 520 and about 560; and

the index of refraction of the optically transmissive material is between about 1.44 and about 1.64.

3. The diffraction grating of claim 1, wherein:

the diffraction order associated with the lowest loss is the second order.

4. The diffraction grating of claim 1, wherein:

the reflective material is at least one of the following: gold material, aluminum material and silver material.

5. The diffraction grating of claim 1, further comprising:

a substantially planar substrate on which the reflective material is formed.

6. A diffraction grating, comprising:

a reflective material having a blazed surface with a blaze angle between about 32 degrees and about 40 degrees; and

an optically transmissive material disposed adjacent the reflective material having an index of refraction (n), wherein the blazed surface of the reflective material has approximately (175±30)*n number of grooves per millimeter.

7. The diffraction grating of claim 6, wherein:

the number of grooves per millimeter for the reflective material is between about 240 and about 300; and

the index of refraction of the optically transmissive material is between about 1.44 and about 1.64.

8. The diffraction grating of claim 6, wherein:

the diffraction order associated with the lowest loss is the fourth order.

9. The diffraction grating of claim 6, wherein:

the reflective material is at least one of the following: gold material, aluminum material and silver material.

10. The diffraction grating of claim 6, further comprising:

a substantially planar substrate on which the reflective material is formed.

11. A wavelength division device, comprising:

a plurality of first coupling components, each first component being capable of receiving a distinct carrier for carrying a signal;

a second coupling component disposed adjacent the first coupling components and capable of receiving a distinct carrier for carrying one or more signals; and

a diffraction grating optically coupled to each carrier received by the first and second coupling components, comprising:

a blazed reflective material having a number of grooves per millimeter and a blazed angle between about 33 degrees and about 41 degrees; and

an optically transmissive material disposed adjacent the reflective material having an index of refraction (n), wherein the number of grooves is approximately equal to $(350\pm30)*n$.

12. The wavelength division device of claim 11, wherein:

the number of grooves per millimeter on the diffraction grating is between about 520 and about 560 and the index of refraction is between about 1.44 and 1.64.

13. The wavelength division device of claim 11, wherein:

the diffraction order associated with the lowest loss is the second order.

14. The wavelength division device of claim 11, wherein the diffraction grating has an efficiency of at least 75% over the C-band wavelength range.

15. A wavelength division device, comprising:

a plurality of first coupling components, each first component being capable of receiving a distinct carrier for carrying a signal;

a second coupling component disposed adjacent the first coupling components and capable of receiving a distinct carrier for carrying one or more signals; and

a diffraction grating optically coupled to each carrier received by the first and second coupling components, comprising:

a blazed reflective material having a number of grooves per millimeter and a blazed angle between about 32 degrees and about 40 degrees; and

an optically transmissive material disposed adjacent the reflective material having an index of refraction (n), wherein the number of grooves is approximately equal to $(175\pm30)*n$.

16. The wavelength division device of claim 15, wherein:

the number of grooves per millimeter on the diffraction grating is between about 240 and about 300.

17. The wavelength division device of claim 15, wherein:

the diffraction order associated with the lowest loss is the fourth order.

18. The wavelength division device of claim 15, wherein the diffraction grating has an efficiency of at least 70% over the C-band wavelength range.

19. A wavelength division device, comprising:

a means for receiving one or more input optical signals;

a diffraction grating optically coupled to the means for receiving, comprising:

a blazed reflective material having a number of grooves per millimeter and a blazed angle between about 33 degrees and about 41 degrees; and

an optically transmissive material disposed adjacent the reflective material having an index of refraction (n), wherein the number of grooves is approximately equal to $(350\pm30)*n$; and

a means for coupling each optical signal diffracted by the diffraction grating onto one or more optical output signals.

20. The wavelength division device of claim 19, wherein the number of grooves per millimeter on the diffraction grating is between about 520 and 560 and the index of refraction is between about 1.44 and about 1.64.

21. A communications apparatus utilizing optical communication, comprising:

a plurality of carriers; and

a wavelength division device, comprising:

a plurality of first coupling components, each first component coupling a distinct carrier for carrying at least one signal within the wavelength division device;

a second coupling component disposed adjacent the first coupling components and coupling a distinct carrier for carrying one or more signals within the wavelength division device; and

a diffraction grating disposed relative to and in optical communication with the carriers coupled to the first and second coupling components so as to diffract one or more input optical rays as a plurality of output optical rays over a wavelength range of at least approximately 30 nm, the diffraction grating comprising:

a blazed reflective material having a number of grooves per millimeter and a blazed angle between about 32 degrees and about 40 degrees; and

an optically transmissive material disposed adjacent the reflective material having an index of refraction (n), wherein the number of grooves is approximately equal to $(175\pm30)*n$.

22. The communications apparatus of claim 21, wherein:

the number of grooves per millimeter on the diffraction grating is between about 240 and 300.